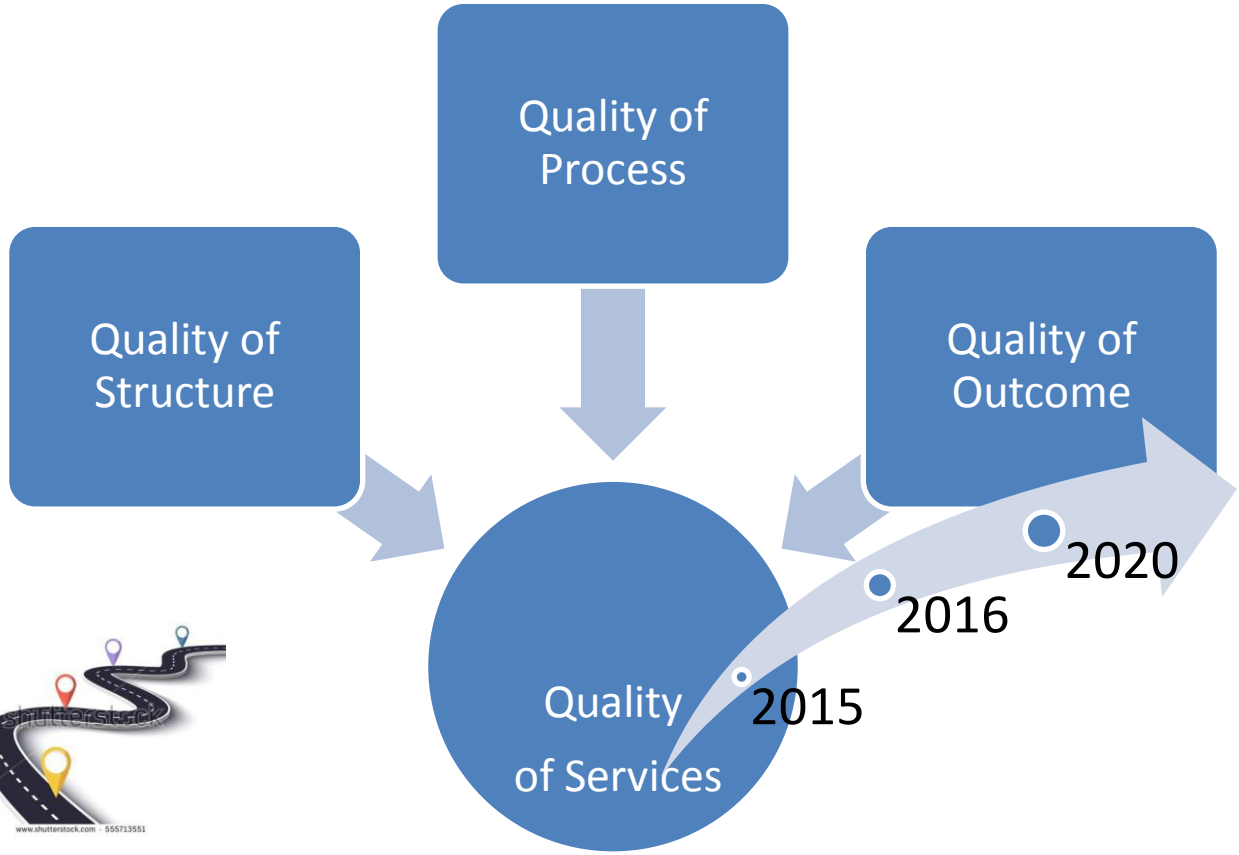
Road Safety and Potholes



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A. What is a pothole?

Potholes are holes in the roadway that vary in size and shape. A **pothole** is a structural failure in a road surface, caused by failure primarily in the asphalt layer due to the presence of water in the underlying soil structure and the presence of traffic passing over the affected area.

Introduction of water to the underlying soil structure first weakens the supporting soil. Traffic then fatigues and breaks the poorly supported asphalt surface in the affected area. Continued traffic action ejects both asphalt and the underlying soil material to create a hole in the pavement.

B. How do you repair a pothole?

A **pothole** is typically fixed by cleaning out the loose debris and filling it with hot and cold asphalt patch. In sequence, the repair should be done as follows:

1. Square the pothole edges as much as possible and pour the repair material into the hole (overfill the hole about 2 to 3 inches above the surrounding asphalt).

2. Consolidate and compact the repair material with a tamper until a firm surface is achieved.

C. Why are potholes a hazard?

Hitting a **pothole** can not only **cause** damage to a vehicle's shocks and suspension, it can also **cause** the driver to lose control of his or her vehicle.

Potholes can **cause** different **types of accidents. In** addition to this poor road conditions often result in serious **accident** injuries.

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D. Types of repairs done to potholes (according to Wikipedia)

D.1. Throw and roll repair

The most basic method, best used as a temporary repair under conditions when it is difficult to control the placement of material, due to the weather and climate. It consists of:

1. Placing the hot or cold patch material into a pothole
2. Compacting the patch
3. Achieving a crown on the compacted patch

D.2 Semi-permanent repair

The semi-permanent repair method is one of the best for repairing potholes, short of full-depth roadway replacement. It consists of:

1. Removing water and debris from the pothole
2. Making clean cuts along the sides of prospective patch area to assure that vertical sides of the repair are in sound condition (Eaton, et al.,[3] recommend a bituminous tack coat in the open cavity, prior to placement of patch material.)
3. Placing the hot or cold patch mix material
4. Compacting the patch with a device that is smaller than the patch area, e.g. vibratory rollers or a vibratory plate

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D.3. Spray injection repair

The spray-injection procedure is an efficient alternative to semi-permanent repair. It requires specialized equipment. It consists of:

1. Blowing water and debris from the pothole
2. Spraying a tack coat of binder on the sides and bottom of the pothole
3. Blowing asphalt and aggregate into the pothole
4. Covering the patched area with a layer of aggregate. This procedure requires no compaction after the cover aggregate has been placed.

D.4. Edge seal repair

- **T**he edge seal method is an alternative to the above techniques. It consists of:
- 1. Following the "throw-and-roll" steps
- 2. After the repaired section has dried, placing a ribbon of asphaltic tack material on top of the
- patch edge, overlapping the pavement and the patch
- 3. Placing sand on the tack material to prevent tracking by vehicle tyres
- 4. In this procedure, one may need to wait for the water to dry in order to place the tack coat.
- The tack material prevents water from getting through the edge of the patch and helps bond
- the patch to the surrounding pavement.

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Form Serial No: **Date:**

Name of road system :

Pothole ID or No (A computer generated serial number):

Name of person or entity reporting problem:

Name of road maintenance company (if known):

Annual Maintenance Contract No (if relevant):

Nature of inspection or assessment:

[ ] **Photograph taken and sent to municipal civic body** (for accountability or to get authorization before repair or maintenance to prevent accidents and other incidences)

[ ] **Condition of pothole (check for shape, size, extent of damage it has caused to the road)**

[ ] **Condition of any discharge from pothole** (c**hecks for infiltration and exfiltration)**

[ ] **Location analysis** (condition of road, whether there is clear visibility and safe navigability with sufficient lighting, any signs of digging or repair work, where some of this is applicable depending upon the size of pothole)

[ ] **Signage for emergency services** (whom to contact for this road system and notification as to what should be done if there are incidents of accidents or other health hazards)

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Evaluation of reason for pothole:

[ ] Poor quality road construction

[ ] **Poor quality repair work**

[ ] **Poor quality "preventive maintenance of road"**

[ ] **Road affected by water bodies or drainage structures**

[ ] **Unplanned digging, construction or repair work**

[ ] **Unforeseen utilization by heavy motor vehicles and goods carrying vehicles**

[ ] **Accidental damage to road surface**

[ ] **Damage due to natural or man-made disaster occurrence**

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Evaluation of action needed:

[ ] **Immediately prevent accidents and health hazards**

[ ] **Issue or put up public notifications**

[ ] **Check for road utilization problems** (unforeseen wear and tear due to loading)

[ ] **Check for seepage** (due to nearby water bodies or drainage structures)

[ ] **Categorize nature of repair work**

Classification of repair work needed (according to Wikipedia):

[ ] Throw and roll repair
[ ] Semi-permanent repair
[ ] Spray injection repair
[ ] Edge seal repair
[ ] Other methods

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Operations or maintenance:

[ ] **Standard Procedures and Precautions checklist**

[ ] **Billboard and Signage checklist**

[ ] **Repair or construction schedule**

[ ] **Preventive maintenance schedule**

Additional nature of inspection or assessment:

[ ] Easy to maintain or repair model

[ ] Quality, longevity and structural integrity (as per standards)

[ ] Asphalting or surface quality (as per standards)

[ ] Safety from road caving in or pillars collapsing (due to poor quality or earthquakes)

[ ] Safety from fire hazards or explosions

[ ] Safety from water seepage and moisture hazards due to surrounding water bodies or drainage structures

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Reason for road inspection or assessment (Tick as applicable):

[ ] Accidents or Health hazards

[ ] Emergency call or disaster

[ ] Preventive maintenance

[ ] Complaints

[ ] Aging

[ ] Routine assessment

Complaint No:

Priority Complaint No:

Time taken:

Record of inspection:

Date	Nature of inspection	Details of inspection	Next scheduled date	Done by

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Record of condition:

Date	Condition	Details of condition	Analysis of condition	Plan of action	Done by

Record of repairs:

Date	Nature of repairs or cleaning	Details of repairs or cleaning	Cost of repairs or cleaning	Reordering Of material	Done by

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- **Record of road's performance (Tick as applicable):**
- [ ] No complaints [ ] Structural integrity proper and adept
- [ ] Occasional complaints
- [ ] Recent complaints
- [ ] Complaints since a long time
- [ ] Rising number of complaints

-
- **Current problem or complaint or observation?**

- **Whether subsequent actions were taken?**

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Whether Corrective Action was outlined? (Yes/No)

- **Details:**

- **Whether Preventive Action is planned? (Yes/No)**
- **Details:**

- **Whether Grievance Redressal was necessary? (Yes/No)**
- **Details:**

- **What will be done to prevent re-occurrence of problem or issue?**